

the lowland region has a much more sandy soil than the upland. That the localized plants of the lowland region were brought in by aquatic birds or other animals from the Atlantic coastal regions through the Hudson and Mohawk valleys seems most probable, since those valleys form a natural water-way in this region. The localized plants are at the extreme limit of their northern range. The waters have not only facilitated introduction but tended to modify temperature, thereby enabling these species to maintain a foothold. What water has done for the localized plants of the lowlands the leaf-mold of the forest floor has done for the localized plants of the uplands.

CONCERNING WOODWARDIA PARADOXA, A SUPPOSEDLY NEW FERN FROM BRITISH COLUMBIA

BY L. M. UNDERWOOD

European fern study neglects or denies the usefulness of two features that American botanists have learned to make of prime importance. The first of these is *type locality* and the second is the necessity of *accurate citation*. Not long ago the writer had occasion to deliver a polemic on some of the carelessness of continental botanists with regard to this matter.* Two years ago I was told by the worker at Kew, whose latest utterance I am here obliged to criticize, that there was enough to do of "real work" not to make it needful "to be hunting up old names, types of genera and species, and type localities." It is just this neglect of old names and type localities that causes some of my British friends to play fast and loose in the matter of making useless redescriptions of plants as new that were long since described. Some time ago † I called attention to the fact that when Baron Eggers collected a *Lygodium* in Hispaniola, the first thing Mr. Baker did was to describe it as new without stopping to look up Hispaniola as a type locality for other possible species of

* A much-named Fern. TORREYA 5 : 87-89. 1905.

† Bull. Torrey Club 29 : 620. 1902.

Lygodium. This we have since been obliged to do, and quickly found that as early as 1810 Willdenow had described *Hydroglossum oligostachyum* (*Lygodium oligostachyum* Desv.), based on Plumier's figure of 1703, from that island. On comparing Eggers' plant with that plate it matched exactly and so *Lygodium gracile* Baker fell into needless synonymy.

Now we have an even more aggravated case from our American northwest coast from which one would naturally be wary in describing new species of ferns, since it has been well collected over since the time of Menzies, Scouler, and Douglas. However, a plant from an Irish greenhouse cultivated from British Columbia comes to Kew and it is promptly described as a new species, *Woodwardia paradoxa* Wright,* apparently without looking up either recent American literature on the subject, or what is still more important, the literature of the past generation. This is all the more inexcusable now, for we have Christensen's admirable *Index Filicum*, and while it fails to give the type locality of the species it catalogues, it nevertheless gives citations accurately, so that anyone who wishes to avoid duplication of names can do so with a minimum of extra labor. Since the possibilities of American fern cultivation have become extensive, and we have had opportunity to cultivate *Woodwardia radicans* of the Old World side by side with the plant of the Northwest, we have been able to see at once, as Mr. Wright has also done, that the two species are absolutely distinct. Instead of dashing off a description of a new species, the first thing the American does is to look up the synonymy and type localities of any species that the writers of the past have needlessly reduced to synonymy. We naturally commence with the Hookerian school of fern students, whose proclivities for lumping species into general synonymy are notorious, and whose work has served to mislead the fern world by their hasty practices. We easily found that two species had been thus reduced: (1) *Woodwardia Chamissoi* Brack. (1854) with a type locality in "Monterey and San Francisco; also in mountains, on the upper waters of the Sacramento River, California," and (2) *Woodwardia spinulosa* Mart. & Gale-

‡ Gardeners' Chron. III. 41 : 98. 16 F 1907.

otti (1842) with a type locality, Orizaba, Mexico. Since 1900 Americans have not only considered these plants distinct from the *Woodwardia radicans* of the Old World, but have considered them as synonyms after an examination of a wide series of material from the entire range of the Sierra foothills from Guatemala to British Columbia.* Taking, however, only the species whose type locality is nearest British Columbia, let us see what Brackenridge wrote about it over fifty years ago. He says, among other things (Wilkes' Expl. Exped. Botany 16: 189. 1854). "Veins of a pale color, transparent, and not anastomosing more than twice; the venules towards the margin parallel and free." These are exactly the characters on which Mr. Wright depends for his so-called new species.

But Brackenridge says further: "This has been referred by Kaulfuss to the *Woodwardia radicans* of Swartz [*sic*] in which he is followed by Hooker and Arnott, in the Botany of Beechey's Voyage; while we cannot but consider the Californian plant as a distinct species, on account of the erect fronds, the total absence of any proliferous bud on the rachis, the more falcate segments, with a wide sinus, rounded at the base, and the pale veins which are not so compoundly reticulate." In this he almost exactly reproduces a number of Mr. Wright's secondary characters. *Woodwardia paradoxa* is thus the third name for our West American chain-fern.

Everyone will make mistakes sometimes but after the necessity of searching type localities, making exact citations, examination of types, and care of existing synonymy has been hammered into the heads of Europeans for a decade, why will they go on and make needless synonyms after this fashion, especially in such small genera as *Woodwardia*? I am sure the English practice in the seed-plants is not like this, at least so far as it relates to American plants, but among the ferns, the Hookerian system of the past seventy years has reduced species to synonymy to redescribe them anew over and over again. Fée's works at Kew are pen-

* Cf. Maxon. List of Ferns and Fern Allies of North America, North of Mexico. Proc. U. S. Nat. Mus. 23: 635. 1905; also Christensen, Index Filicum, 658. 1906.

cilled after his new species " = this or that species " and a lot of them have been redescribed as new, when the plant actually came to hand. Is it any wonder that Christensen has over 22,000 names for a little less than 6,000 plants? The practical lesson of the story is:

1. Make a study of geographic distribution in its relation to specific limitations.*

2. Consider type locality as a fundamental part of a plant description. It is the lack of this element that makes Christensen's *Index* just short of the ideal.

3. Beware of any species with a wide range as recorded in *Synopsis Filicum* or that has an extended synonymy † either there or in *Species Filicum*; there are few species of world-wide distribution and there will be sure to be something wrong with wholesale slaughter; these are danger marks not to be disregarded.

4. Synonyms and homonyms are still important factors in taxonomy.

We commend the above suggestions to the prayerful attention of European fern students.

A HYBRID LESPEDEZA

BY KENNETH K. MACKENZIE

Ten years ago, while on a botanical trip in southern Missouri, I ran across a procumbent *Lespedeza* with yellowish flowers. The plant was rare and was referred to *Lespedeza hirta* (L.) Ell., with many misgivings. Later, in an article on the *Lepedezas* of Mis-

* Scores of plants from America have been referred to species originally described from Mauritius. Such a conception of geographic distribution is absurd on the face of it, and every new examination of types from the two countries only serves to confirm their distinctness. One great desideratum of American fern students to-day is authentic material from Mauritius to enable us to straighten out the Hookerian muddles of just this sort.

† In the present case the citation of Brackenridge was more simple at Kew than it would be in New York, since Kew is one of the fortunate institutions that possesses a copy of the rare work of Brackenridge on the Ferns of Wilkes' Exploring Expedition. Here at New York we have to consult the nearest copy at New Haven, or else as in the present instance trouble Yale's obliging professor of botany, Dr. A. W. Evans, whose kindness in furnishing quotations I most thankfully acknowledge.